2. *Stimulants.* These in the first stage, I believe, aggravate the symptoms, and are therefore inadvisable. One hears of one passenger being cured by a little porter, another by a little brandy and water, a third by a glass of sherry and a teaspoonful of tincture of gentian; whilst each of these has, on the contrary, made some one else decidedly worse! The explanation of these conflicting statements lies, I suspect, in this: that those whom these agents made worse, were in the first stage, and those whom they relieved, had passed it. The kind and amount of stimulant to be taken will, no doubt, be mainly dependent on the patient's habits and likings. As a rule, I am of opinion the less the better.

3. *Medicines.* Numbers of these have in their several turns been not a little lauded; but their usefulness is probably significantly indicated by their number. Like the asserted remedies for hydrophobia, they are very many and good for very little. People swallow them, and wait; take other doses, and wait again. Thus time is occupied, and attention engaged; the desire for "something to be done" is satisfied, and anxiety appeased; the attack gradually passes by, they get well, and—praise the last supposed remedy they may have happened to employ. This, I believe, to be about the truth with respect to most of the reputed cures for sea-sickness. Sufferers will, nevertheless, continue to use them; and so long as they are not injurious, it is scarcely worth while to forbid them, provided reliance on them do not prevent recourse to the best remedy—exertion.

My own observation would lead me to give a free dose of calomel, six to ten grains, and to follow this in about two hours by one or two pills of aloes and colocynth, after the stomach had been emptied, and bilious vomiting had set in; i.e., about the end of the first stage. A warrant for procuring free peristaltic action is found in the fact that diarrhoea will banish or replace sea-sickness, and that the latter will return as the diarrhoea is checked or subsides. I have noticed some relief from small doses of creasote (half a minim) and magnesia (gr. iij); and that whilst draughts of plain cold water excited vomiting, the addition of a little carbonate of soda obviated it.

4. *External Remedies.* I have used with frequent success a large sinapism over the epigastrium, in the second stage. An opiate plaister in the same situation, and a tight belt, are also well reported of; but with these I have no practical acquaintance. In severe or protracted cases, blistering the epigastrium will probably be valuable as a counterirritant, since the lighter action of mustard suffices for milder attacks.

5. *Mechanical Remedies.* Under this head may be comprised those means which counteract the peculiar motion of the ship or vessel—the cot, the hammock, and the swinging bed of Mr. Brown, with single or double action. My own children had swinging cots for some time, and found much relief and comfort in them. Of merely moderate motion of our ship (a fast sailer, but excessive roller) they were not conscious; but they were sick at intervals for so long a time that I suspect the comfort just named was purchased rather dearly. Lest, however, I be misunderstood respecting the cot or hammock, and in anticipation of the remark that sailors use and prefer one or the other, I would add, that sailors, when afloat, lead active lives; and that their activity both banishes sickness and promotes their general health, thus rendering them independent of either swinging or fixed beds. It is occasionally found needful, in severe cases, to cover the cot or hammock with a sort of canopy, to prevent the patient from being harassed by the apparent movement of the ceiling.

In illustration of some of the preceding remarks, may be adduced the instance of one of our passengers, who suffered severely, and for several weeks. She was of a full habit of body, and of irritable temper; and had a most attentive niece, and no less indulgent husband. Thus favourably situated for "getting her own way", she was always taking little messes and slops of either sweet or fatty food; she drank wine and porter, and lay about in a reclining chair; nor did she even begin to mend till we had passed the tropics, and reached high south latitudes and cold weather.

P.S. During heavy gales, and in the wild seas off the Cape (within the parallels of "the stormy forties", and in the waters of the "South Terrific"—facetious, but most expressive terms), more than one of our passengers was affected, long subsequently to perfect recovery from sea-sickness, with symptoms resembling slight cerebral congestion—headache, flushed face, general oppression and lassitude, but little or no nausea. This *malaise* was, however, unimportant and transient.

THE NATURE & TREATMENT OF CANCER: BEING THE Address in Surgery

READ BEFORE THE TWENTY-FIFTH MEETING OF THE BRITISH
MEDICAL ASSOCIATION,

Held at Nottingham, July 28th, 29th, and 30th, 1857.

By GEORGE SOUTHAM, Esq., F.R.C.S., Surgeon to the Manchester Royal Infirmary.

It has been in full reliance upon the kind indulgence of this enlightened and influential assembly, that I have ventured to undertake the responsible duty of delivering the Annual Address in Surgery, and to occupy a place to-day which has on former occasions been filled by some of the most distinguished members of the profession. I feel still greater diffidence in following these gentlemen, because the address is not intended, as formerly, to be a detailed review of the various contributions of the previous year to surgical science (the improved state of our periodical literature having superseded this course), but a critical inquiry into some special department of surgical knowledge and practice.

To my mind, there is no subject better suited for this occasion than that of cancer, not only on account of its practical and speculative character, but because it has engaged a large share of the attention, both of surgeons and pathologists, during the last few years. To allude to the whole of this question within the limits of an essay would be impossible; my remarks will necessarily, therefore, be of a general character, and be directed chiefly to those points which will lead to the most correct principles of treatment. With this view, I shall call your attention to—

- i. The Origin and Nature of the Disease.
- ii. The Circumstances which modify its Growth and Duration.
- iii. The Influence of Treatment in eradicating or palliating it.

I. ORIGIN AND NATURE OF THE DISEASE.

What is Cancer? In the first place, we must decide what affections are included under the term cancer—a question which, in the present day, may appear somewhat singular. Yet this it is necessary to do, not because recent investigations have not thrown considerable light on the subject, but because some surgeons and pathologists have sought to give undue prominence to one or two particular signs, valuable, no doubt, in connection with others, in determining the true nature of morbid growths, but of themselves insufficient as diagnostic indications. Thus, at one time the *pathologist* maintained that in heterologous and homologous growths might be discovered the distinguishing features between carcinomatous and innocent tumours; at another, that their characteristic signs were to be found in their mode of growth; whilst of late years many have fixed the only true test in the presence or absence of a particular form of cell. In like manner, the *surgeon* thought that he had observed a specific indication of the disease in one or more of the leading symptoms, each having at various times had a certain degree of prominence assigned to it.

Another source of complication has arisen in the variety of names given to the different forms of morbid growths—every new contributor to our knowledge on the subject having generally added some new term to our already over-burdened nomenclature.

Pathologists are doubtless entitled to the fullest merit for their investigations; but it must be admitted that these patient labourers in the cause of medical science have not as yet succeeded in giving us any special sign by which the two forms of growth may be distinguished. It is only, therefore, by comparing the leading peculiarities which both clinical observation and pathological research have revealed as characteristic of each, that at present we can arrive at any satisfactory conclusions.

Description. Without entering into a formal description of carcinoma, I may briefly state that the term includes all growths formed of, or having incorporated with them, an abnormal organised material, which infiltrates itself into the tissues in

which it is deposited, increasing and multiplying itself in other parts of the body, almost invariably returning after removal, prone to ulcerate, and, in its disintegration, destroying the surrounding textures; of constitutional origin, and attended with impairment of the general health, ending eventually in the destruction of life.

These symptoms do not *all* present themselves at the same time, except in the latter stages, but vary in their number and character at different periods of the disease. Thus, the constitutional symptoms usually do not develop themselves until the functions have been extensively interfered with; and in the early stage, the deposit, instead of being infiltrated in the surrounding structures, often forms a distinct tumour, which condition it may retain, especially if seated in bone throughout the entire course of the disease, provided the general infection is intense enough to destroy life in a comparatively brief period.

The recurrence of the tumour after removal, either in its original seat or in other parts of the body, is also not peculiar to carcinomatous growths; for occasionally cystic, cartilaginous, erectile, adipose, and other innocent tumours, follow the same course; their return, however, leading to no injurious reaction on the general system. It is, then, in the tendency of the growths to multiply themselves in the different textures of the body, to return after removal, and to present during some stage of the affection symptoms indicating constitutional vice, with its almost invariably fatal nature, that we have the leading characteristics of cancer.

Whether the local and constitutional conditions are present *ab initio*, is a question respecting which a difference of opinion exists amongst those who have made cancer their particular study; but both clinical inquiry and recent researches into the anatomy of the morbid deposit lead us to believe that its primary seat is in the system at large. Amongst those who advocate its local origin may be mentioned Velpeau (*Diseases of Breast*, Sydenham Society's edition, pp. 446, 473, 752); and, if his statements could be relied on, the question might still remain open for investigation. But his remarks on the curative results of extirpation are so completely at variance with the experience of other surgeons, alike in this country, France, and Germany, that we are led to the conclusion that many of the cases reported by him as cured would have been considered by others as innocent growths.

It is true that the removal of the local disease is often followed by improvement in the patient's general health; that the emaciated and debilitated are sometimes seen to regain their strength, flesh, and natural complexion; and that in favourable cases some advantage in the duration of life is gained—results from which some infer that the presence of the local disease is of itself injurious to the system, by exciting a toxic influence on the same. Such a view might be admitted if the improvement were of a permanent, and not, as it usually is, of a very temporary character, appearing rather to spring from that mental relief which naturally follows the eradication of the most striking feature of the disease.

The absence of symptoms either preceding or coincident with the early signs of cancerous growths indicating constitutional derangement, is often advanced as a proof that the general system is not primarily the seat of the disease; but this argument falls to the ground in scrofula and syphilis, whose constitutional character is never doubted—diseases which, it is well known, frequently present themselves for a considerable period as local affections, without the manifestation of any constitutional disturbance.

It must be confessed, that as yet we are ignorant of any of the signs of the pre-existence of the cancerous diathesis; but it is clearly peculiar to certain constitutions, for it would be impossible to explain on other grounds how one woman may, from a blow on the breast, have a cancerous growth developed, while fifty others exposed to the same accident escape; how decayed or broken teeth so rarely give rise to cancer of the tongue, though these are generally admitted as its exciting cause; how uterine cancer is not more frequent in prostitutes than in those where the uterine system is less exposed to excitement; or why it should appear no oftener in the maternal than in the virgin breast and uterus.

Then what constitutes the element of this predisposition to cancer? At one time, it was thought the morbid matter existed preformed in the blood, because its presence had been detected in the veins. But it is only in connexion with deposits in some part of the body that it has been found (Langstaff, *Med.-Chir. Trans.*, vol. viii, p. 286; Velpeau, *Rev. Médicale*, 1825, p. 367; Carswell's *Pathological Anatomy*); and

consequently the natural inference is, that its entrance into the circulatory system was by absorption. Indeed, it can scarcely be supposed that blood holding cancerous matter in suspension could perform its healthy nutritive functions, as it frequently does for years after the removal of schirrous tumours, or in those cases where the disease remains stationary for a considerable period.

It has been stated that, in persons predisposed to cancer, the blood contains a superabundance of albumen or fibrine; but, beyond this fact, organic and minute chemistry have added nothing to our knowledge on this subject. Nor do the experiments of inoculating animals with cancerous matter lead to the supposition that the material exists preformed in the blood, for the majority of cases have been failures; and, in the few instances where it is said to have succeeded, the disease has been purely local,* deposits in other parts of the body having been found in only two instances out of a large number of experiments (Langenbeck, Schmidt's *Jahrbücher*, vol. xxv, p. 104; Velpeau, *op. cit.*, p. 444); and these occurred in dogs, which may possibly have been previously infected, as cancer is not an uncommon affection in these animals. Neither does the hereditary tendency to the disease, which appears to exert its influence in at least one fifth of the cases, support this view;+ for it affords no proof that the cancerous material passes with the germ, but merely that it conveys with it a tendency to the production of those conditions which may ultimately lead to its development, just as the germ may convey with it other peculiarities of the parent. But, though the essential element of cancer does not exist preformed in the blood, our knowledge of healthy and diseased nutrition tends to show that the morbid material first appears in its rudimentary state in this fluid from perversion of some part of the nutritive process. Its further development is influenced by nutrition generally; and, as this function requires several conditions for its healthy performance, especially a due supply of healthy blood, a certain amount of nervous force, and a natural state of the proper elements of the part, so we may expect that it is through more or less derangement of each of these that the disease becomes fully formed. No doubt it has its principal source in the blood, the other conditions being also implicated, but not perhaps to the same degree. Indeed, if we except cystic formations originating in obstructed ducts, the chief distinction between carcinomatous and innocent tumours, as regards their origin, appears to depend on the extent to which all the essentials of nutrition are affected. If the local conditions, such as the nervous influence and the proper elements of the part, are alone involved, the growth will be of an innocent nature, and its structure resemble that of the part in which it originated; but if the material from which the disease is formed is secreted from cancerous blood, the growth will be malignant; and in proportion to the *extent* of the disease in the blood, so will the characters of the morbid deposit differ from the natural structures of the part, the highest degree of malignancy being characterised by heterologous deposit, the lowest by only a slight deviation from the healthy tissues, as seen in the recurring fibroid and myeloid tumour of Paget, the fibro-nucleated of Bennett, the fibro-plastic of Lebert, or the albuminous sarcoma of Gluge—growths which these pathologists regard as innocent, from the similarity of their cells to those found in some of the embryo tissues, or in lymph and granulations, though their clinical history places them, in many instances, in the category of malignant tumours.

The conditions, therefore, essential to the production of cancer, are partly constitutional and partly local; the constitutional leading to the development of the cancerous element in the blood, by interference with the functions which preserve this fluid in its healthy state; the local separating the morbid material thus produced, and transforming it into cancerous deposit, which replaces, or becomes incorporated with, the proper textures of the part. Neither of these conditions *alone* can develop the disease. A blow or injury cannot of itself produce it; nor can perverted nutrition of a part from any other cause, unless the cancerous element exists in the system. But when this element is in excess, it is sufficient of itself to cause the local affection; as, for instance, in disseminated cancer: indeed, from the course this variety takes, it would

* Dr Watson's and Dr. Copland's (*Dict. Pract. Med.*, vol. iii) cases of cancer being transmitted from wife to husband show the same result, even admitting there was no previous predisposition in both parties.

+ Paget found, out of 254 cases of cancer, 60, or 23.6 per cent., had relatives of the same or former generations with cancerous or other tumours (*Medical Times and Gazette*, 1857, p. 191). Velpeau says more than one-third of the cases he has met with presented this feature (*Diseases of Breast*, p. 439). Lebert found it in only 14 out of 202 cases.

appear that injury is not so frequently the exciting cause as is generally supposed, the disease not necessarily following injuries in persons so affected.

As regards the tissues which may be affected by cancer, it is obvious that it may be deposited wherever nutrition is in progress; and, consequently, no organised texture is exempt from its ravages.

It is now generally acknowledged that its earliest condition is that of a blastema or fluid, which Virchow (*Archiv.*, B. 1, viii) and Vogel (*Path. Anat.*, p. 565) describe as consisting of a firm, compact, amorphous substance, similar to coagulated fibrine, sometimes containing molecular granules of modified protein or fat—characters not materially differing from the blastema of the natural tissues and other formations. In this blastema, cells are developed, supposed by Lebert, Robin, Hannover, Paget, Druitt, and others, to be of a specific nature. Frequently, no doubt, they present appearances which differ from those of the healthy tissues; the cell-wall and its nuclei, nucleoli, and granules, being usually larger. They are also more varied in form, in some cases being round or oval, in others caudate or elongated. The cell-wall is extremely thin and pale, and, when submitted to the action of dilute acetic acid, is so transparent as to display the nucleus and its nucleoli distinctly. In the blastema, granules are also found, as well as numerous nuclei and nucleoli, destitute of any distinct cell-wall. The cells are said to be endowed with amazing reproductive powers, each being supposed to produce, either by fissure or from its nuclei, a second; the granules which the cells and blastema contain also becoming nucleoli, and ultimately parent cells. A fibrous tissue or stroma may also be developed from the blastema, in some cases forming the principal portion of the deposit. It is as yet undetermined whether this stroma is formed directly from the blastema or from the cells; possibly the latter is the transition stage. Nor does it present any peculiarities by which it can be distinguished from condensed or indurated areolar tissue of other parts, except, perhaps, in the arrangement of its filaments; consequently, it is supposed by some not to be a new formation. But it is difficult to comprehend how it should constitute the chief portion of some varieties of cancer (scirrhus), without regarding it in this light: indeed, it would seem to indicate that the cell is still capable of undergoing further development—a view which is confirmed by this form of deposit being usually characteristic of malignant tumours of slow growth; whilst the cellular variety is peculiar to those of rapid formation, probably from the developmental power being destroyed, in consequence of the blood being more highly impregnated with the disease.

As regards the speciality of the cancer-cell, it is questionable how far this can be admitted. Compare it with the transitional epithelia of the different membranes of the body, or many of the gland-cells, or with the fibro-plastic cells of some innocent tumours; and there will appear numerous instances of similarity, as will prove this mode of diagnosing malignant growths to be most unsatisfactory and delusive. Indeed, its most experienced advocates have given numerous proofs of their inability to apply this test to practice. I need only refer to the works of Nélaton (*Clin. Surg.*, Philad., 1855, p. 457) and Velpeau (*loc. cit.* p. 21) to show that tumours, which run their course and terminate in precisely the same way as cancer, have, under the scrutinising examination of Lebert and Robin, been found destitute of the specific cell; whilst M. Mandl, another experienced histologist, asserts that he has met with the same form of cells in healthy lung. Further, in osteoid and fibrous cancer, there is a general absence of cells, or they are so few in number as often not to be discernible.

There appears, then, no reason to regard the cells found in cancerous growths other than as the ordinary ones formed for the development of healthy tissue, which have taken on an abnormal character, in consequence of the blastema derived from the blood for the nutrition of the part being in a diseased state. Their subsequent development is under some specific influence, which in cancer, as in other morbid growths of constitutional origin, exerts its effects in various degrees, according to its interference with the vital powers. Thus, the blastema of tubercle may be said to be almost destitute of vitality, and therefore incapable of development; and either degenerates into imperfect pus, or undergoes some chemical conversion. But cancerous blastema, being more highly organised, may be transformed into caudate or fibro-plastic cells, with their nuclei and granules; and these may merely reproduce others similar to themselves, or they may go beyond this, and manifest themselves as imperfectly formed fibrous tissues—the cancerous

stroma. The new formation in either case has, however, only a temporary existence; for, after having arrived at a certain degree of perfection, it almost invariably degenerates.

On the other hand, in the absence of these specific influences, as in the ordinary effused lymph of inflammation or of healthy granulations, the cell is endowed with the power of progressive development, passing from the fibro-plastic cell into filamentous tissue, which finally assumes and retains all the characters of the healthy elementary structures in which its blastema was originally generated.

But, though we can ascribe no special features to the cells found in cancer, the microscope has furnished us with much valuable information respecting the nature of tumours generally. Whilst it has shown that the primary elements of all morbid growths do not materially differ from those of the normal tissues, it has also shown that these constituents vary in the degree of their development, in their mode of arrangement, and in their relative proportion to each other; that, in innocent tumours, the difference is slight, whilst in malignant ones it is more marked; the higher degrees of malignancy being characterised by a general want of order in the distribution both of their primary elements and the more perfect structures entering into their composition; which, when accompanied by the presence of an opaque milky or cream-like fluid, yielded by the deposit when submitted to pressure, may perhaps be regarded as the most characteristic pathological signs of cancer.*

The microscope, likewise, has enabled us to arrange the various forms of the disease into three groups, according to the preponderance of their primary elements. One group is marked by an excess of blastema, constituting gelatiniform or colloid cancer; another, by an excess of cells, forming cephaloma, medullary or soft cancer; a third, by fibrous tissue—scirrhus, petrous or hard cancer. These may occur separately, or they may all be present in different parts of the body at the same time, or in the same tumour, each form either remaining distinct, or passing so imperceptibly into the other that it is sometimes difficult to decide to which particular group the disease belongs. The other varieties met with are merely modifications of these, arising from some of the constituents of the body, more or less altered in structure and quantity, being incorporated with them, or from degeneration of the cancerous deposit.

Thus, in hæmatoid cancer—fungus hæmatodes—there is an excess of blood, either free or enclosed in vessels; in melanosis, a superabundance of colouring matter, or pigment contained within cells; in osteoid cancer—the spina ventosa of the older surgeons—of osseous tissue; and in canceroid or epithelial cancer, an excess of epithelial and other cells; whilst, from the degeneration of the morbid material, fat-globules may be infiltrated through the deposit, producing lardaceous or reticular cancer; or it may become converted into calcareous matter; or atrophy may ensue, causing the peculiar cicatrical contractions (Wed's *Pathology*, Syd. edition, p. 535) sometimes observed in senile cancer.

By the same method of investigation, important information has been obtained respecting the manner in which the morbid material is deposited in the various tissues of the body. It is well known that its tendency is to infiltrate or diffuse itself amongst the different tissues; but the mode of extension, and the effect it produces on the original textures, have only recently been satisfactorily explained, and mainly through the exertions of Virchow (*British and Foreign Med.-Chir. Review*, 1855, p. 391). He has shown that the local changes are not limited to the parts which are the seat of the deposit, but that the surrounding structures, which appear to the naked eye perfectly sound, are also involved. These, when examined with the microscope, are found to be infiltrated with innumerable small cells, gradually increasing in size, and collecting in larger and more numerous groups the nearer they approach the swelling, and, in advanced stages of the affection, sometimes penetrating to a considerable distance into the surrounding parts. The cells and granules extend themselves chiefly along the areolar tissue, and ultimately into the tissue itself, and even into the nerves and coats of the blood-vessels, the normal nutrition of which being interfered with, atrophy of these structures ensues, and their place is supplied with true cancerous deposit. There appears to be, therefore, no transformation of the natural structures into cancer. Either they are absorbed, or they become incorporated with the disease, where they may remain as

* Cruveilhier first pointed out this sign. It is often necessary to wait a few hours after the removal of the tumour before the fluid can be detected.

healthy tissue, provided the blastema is not so completely impregnated with cancerous material as to deprive it of all power of regenerating the original structures (Paget, *Surgical Pathology*, vol. ii, p. 561).

I have alluded to certain fibro-plastic tumours which present during their progress several of the clinical signs of carcinoma, but which pathologists consider to be innocent growths, because they do not agree in their minute anatomical characters with cancer. For a similar reason, the terms "canceroid" and "epitheloma" have been applied to a group of diseases affecting structures covered by epithelia, which have usually been considered carcinomatous. But it is only in the form of cells which enter into their composition that any ground exists for considering them as distinct affections; for they possess, though in a less marked degree, all the other peculiarities of malignancy. The tessellated and scaly cells of "canceroid" growths appear to be epithelia arrested or altered in their growth by disease, just as the cells of other forms of cancer are formed from the diseased state of the cells which should enter into the composition of other healthy structures. In all other respects they resemble carcinoma, infiltrating themselves in the tissues, reappearing after removal, taking on ulcerated action, and ultimately destroying life through the general infection of the system. It is true, they manifest their effects on the system more slowly than cancer of other parts, and that their local changes are also more protracted; but is there nothing in the condition of the skin and mucous surfaces to account for these peculiarities? Do we not find that several other diseases of these parts are extremely slow in their progress—that lepra, psoriasis, and lupus, may affect an extensive surface of the skin for years; that suppuration and superficial ulcers of mucous membranes may continue for a length of time, without impairing the general health? The entire skin, as an excretory organ, performs functions almost as important as any emunctory of the body; but a large portion of it may remain inactive without causing any serious derangement to the health. Not so the other organs, which are so limited in size that any interruption to their functions soon leads to marked derangement of the system.

Canceroid growths certainly bear removal better than cancer generally; but is not this due to their chronic character? And their disposition to return at the original seat, or in its immediate vicinity, which some adduce in proof of their local origin, is entirely in accordance with what follows the removal of other malignant tumours, extirpated under similar circumstances. Thus, when bone or the breast is the seat of cancer, if the diseased part only be removed, the affection almost invariably returns in the portion that has been left.

Nor is their tendency to reappear only in the situation of the original disease so general as some have supposed. So long as the system is only slightly affected, they may confine themselves to a particular locality; but when the constitution shows marked contamination, secondary deposits will be frequently found in other parts. In this respect, they follow the same course as cancer of bone or cellular tissue, both of which generally attack only analogous tissues and parts in the immediate vicinity of the original disease, until the general infection of the system becomes complete, when they extend their ravages to other structures and localities.

But it has been asserted that canceroid and epitheloma not only differ essentially in their primary elements from other forms of cancer, but, says Nélaton, "they never in their progress produce that profound alteration of the organism known as the cancerous cachexia" (*Clinical Surgery*, p. 471). This statement is evidently not borne out by clinical observation. Within the last few months, three cases have come under my own notice disproving this. In one, the patient had suffered from cancer of the nipple for upwards of ten years, and has had marked cachexia and sallow countenance for several months past. The same symptoms appeared in another person, from whose lip, twelve months previously, I had removed an epithelial cancer; and also in a man who had been suffering from the same disease for upwards of four years. I have seen two other cases bearing on this question; one of a female with scirrhus mamma, from whom, five years previously to its development, I removed a cancerous ulcer from the cheek; in the other, there was epithelial cancer of the anus, coexisting with scirrhus of the prostate. Rokitsansky, Velpeau, and Paget, have also recorded similar cases.

Further, these affections agree in their minute anatomical characters with carcinomatous growths, portions of their tessellated scales and cells being irregularly dispersed through the proper tissues of the skin, mucous membranes, or other parts covered

by epithelia, replacing or variously changing their natural structures; and according as the deposit is situated in an equal degree in all the tissues entering into the composition of these parts, or is in excess in the papillæ and epidermis, or in the subintegumental tissues, so the disease will present variable characters, of which the ordinary cancer of the lower lip may be regarded as the type of the first form; cauliflower excrescence and villous cancer, of the second, or the papillary and epidermoid infiltrations; and the deep seated flat or rounded tubercle, which gives origin to rodent ulcer, of the last. Indeed, the distinction between innocent and malignant structures, as regards their minute anatomical characters, can nowhere be better studied than in epitheliomatous growths; for, in the common warty, papillary, and condylomatous tumours, where the enlargement, whether from abnormal increase of the epithelium, epidermis, or papilla, is simply the result of hypertrophy, or from infiltration of the parts with inflammatory products, the different structures, instead of presenting a confused arrangement, preserve their natural relation to each other; the epithelial deposit, the scales of which are unchanged by disease, consequently not lying within, but upon, their surface.

I can only very briefly allude to the other kinds of doubtful growths in connexion with that important subject, the degeneration of innocent tumours. It was formerly considered that all innocent growths were extremely prone to become cancerous; but, for some years past, pathologists have taught that, if a growth is malignant, it must have been so from its commencement, and that a perfectly innocent one never becomes cancerous. This view is undoubtedly correct in the majority of cases, but instances occasionally occur where it is not verified. Take for example the most simple form of growths.

Sir Astley Cooper's experience led him to infer that a fatty tumour may sometimes take on malignant action. Brodie inclines also to the same opinion, and, in support of it, gives the particulars of a case which came under his own observation (*Lectures on Pathology and Surgery*, 1846, p. 282). Simple cysts may become cancerous, but perhaps less frequently than is generally supposed; for the fungosities which are found in their interior are more frequently the result of inflammatory action than of any constitutional cause. It is in the ovaries they are met with most frequently; and, when accompanied by cachectic symptoms, their cancerous nature seems to be confirmed. But the cachexia more probably arises from imperfect nutrition, caused by pressure of the tumour on the surrounding parts, than from any general infection of the system. Cysts, however, do become the seat of cancer; a well marked case of this kind came under my notice three years ago, where a simple cyst, which had existed some years in the mamma, became cancerous, as well as the surrounding structures; and there is now amongst the out-patients at the Manchester Infirmary a female, under the care of Mr. F. Heath, where a malignant tumour of the face, attended with the usual constitutional symptoms, originated in a simple cyst, which had existed for twenty-eight years. Cartilaginous tumours are well known to contain occasionally cancerous material; and warty growths of the skin are said to be frequently the earliest evidences of epithelial cancer. Several of the fibro-plastic tumours to which I have alluded must also be admitted to be either innocent growths which have subsequently assumed a malignant character, or that pathological data are too imperfect to enable us to distinguish between the two diseases in their earliest stages.

On the other hand, the two varieties of tumours are sometimes found in the same person, quite unconnected with each other. Thus, females with fibroid tumours of the uterus are occasionally found to be affected with cancer of the os and cervix. Chronic mammary tumour may occur with cancer of the same part, each disease remaining distinct from the other, of which Mr. Paget has recorded three well marked instances. Warty growths of the skin I have frequently known to have remained quiescent in persons suffering from cancer in their immediate vicinity. Still it must be admitted that innocent tumours may sometimes become cancerous, but not from transformation of their structure, the morbid material being incorporated with it as it is with the other tissues of the body. They, however, seem less liable to its ravages than the healthy structures; and the cancerous diathesis, though it may in no way have contributed to their original formation, must be first developed before they can become affected.

[To be continued.]